

DEDICATION

*To
My family*

DECLARATION

This research was carried out by the undersigned at the Sudan University Science & technology, during the period 2004-2005 and was not submitted for any degree before.

Signature:

Bashir Abd-Elkhaleq.....

Dr. Mohammed Abd-Elraheem.....

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ABSTRACT

This prospective study was done during the period; from October 2004 to July 2005. It compared serum levels of total proteins, albumin, globulins and Albumin/Globulin Ratio of 100 patients with pulmonary tuberculosis chosen randomly from Abu Anja hospital in Omdurman city (Khartoum state) and 50 apparently healthy individuals as controls group.

The patients group had no significant difference in age mean compared with the controls group. The mean of age was ($30.0900 \pm \text{SD } 8.11918$) years in the patients group compared with ($29.3200 \pm \text{SD } 5.86738$) years in the controls group, ($P > 0.05$).

There was no significant difference between male and female in both groups (patients and controls) on the levels of serum protein (T. protein, albumin, globulin and albumin/globulin ratio), ($P > 0.05$).

The patients group had no significant difference in the mean of serum total protein levels compared to the controls group. The mean of serum total protein was ($7.701 \pm \text{SD } 0.6768$ g/dl.) in the patients group compared with ($7.586 \pm \text{SD } 0.4576$ g/dl.) in the controls group, ($P > 0.05$).

Patients with pulmonary tuberculosis had a highly significant lower serum albumin levels compared with the controls group. The mean of serum albumin was ($3.3980 \pm \text{SD } 0.34873$ g/dl.) in the patients group compared with ($4.2260 \pm \text{SD } 0.19672$ g/dl.) in the controls group, ($P < 0.05$).

Also the patients group had a highly significant higher serum globulins levels compared with the controls group. The mean of serum globulins was ($4.314 \pm \text{SD } 0.6074$ g/dl.) in the patients group compared with ($3.3600 \pm \text{SD } .38386$ g/dl.) in the controls group, ($P < 0.05$).

The tuberculosis group had a highly significant lower in serum albumin/globulin ratio compared with the controls group. The mean of serum albumin/globulin ratio was ($0.770 \pm \text{SD } 0.1421$ g/dl.) in the patients group compared with ($1.247 \pm \text{SD } 0.1430$ g/dl.) in the control group, ($P < 0.05$).

It was concluded that pulmonary tuberculosis is one of the causes of reduced serum levels of albumin, albumin/globulin ratio and raised serum levels of globulins. However, it does not affect the serum levels total protein.

ملخص البحث

أجريت هذه الدراسة المتوقعة خلال الفترة من أكتوبر 2004 و حتى يوليو 2005 حيث تمت مقارنة مستويات البروتين الكلي والأليومين والقلويولين ونسبة الأليومين للقلويولين في مصل الدم عند 100 مريض بالسل الرئوي تم إختيارهم عشوائيا في مستشفى ابو عنجة في مدينة امدرمان (ولاية الخرطوم) مع 50 من الأصحاء كمجموعة تحكم (مجموعة ضابطة).

لم يكن هنالك أي فرق ذو دلالة معنوية إحصائية بالنسبة لمستويات العمر، حيث كان المستوي الوسطي عند مرضى السل الرئوي ($30.09 \pm$ وانحراف معياري 8.11918 سنه) مقارنة مع مجموعة التحكم والتي كان المستوي الوسطي فيها ($29.32 \pm$ وانحراف معياري 5.86738 سنه) عند مجموعة التحكم وكان الاحتمال الإحصائي للمقارنة اكبر من 0.05

لم يكن هنالك أي فرق ذو دلالة معنوية إحصائية بين الذكور والاناث في المجموعتين (المرضى والصحاء) في مستويات البروتين في مصل الدم (البروتين الكلي ، الأليومين ، القلويولين و نسبة الأليومين للقلويولين) وكان الاحتمال الإحصائي للمقارنة اكبر من 0.05

لم يكن هنالك أي فرق ذو دلالة معنوية إحصائية بالنسبة لمستويات البروتين الكلي في مصل الدم حيث كان المستوي الوسطي عند مرضى السل الرئوي ($7.701 \pm$ وانحراف معياري 0.6768 جرام/ديسيلتر) مقارنة مع مجموعة التحكم والتي كان المستوي الوسطي فيها ($7.586 \pm$ وانحراف معياري 0.4576 جرام/ديسيلتر) عند مجموعة التحكم وكان الاحتمال الإحصائي للمقارنة اكبر من 0.05

أما بالنسبة لمستويات الأليومين في الدم فقد كان هناك انخفاض ملحوظ في مستوياته وكان هذا الانخفاض ذو دلالة معنوية إحصائية، حيث انخفض المستوي الوسطي عند مرضى السل الرئوي بالنسبة للأليومين إلى ($3.398 \pm$ وانحراف معياري 0.34873 جرام/ديسيلتر) مقارنة مع مجموعة التحكم والتي كان المستوي الوسطي فيها ($4.226 \pm$ وانحراف معياري 0.19672 جرام/ديسيلتر) وكان الاحتمال الإحصائي للمقارنة اقل من 0.05

بالنسبة لمستويات القلويولين في الدم كان هناك زيادة ملحوظة في مستوياته عند مرضى السل الرئوي وكانت هذه الزيادة ذات دلالة معنوية إحصائية ، حيث ارتفع المستوي الوسطي عند مرضى السل الرئوي إلى ($4.314 \pm$ وانحراف معياري 0.6074 جرام/ديسيلتر) مقارنة بمجموعة التحكم والتي كان المستوي الوسطي فيها ($3.360 \pm$ وانحراف معياري 0.38386 جرام/ديسيلتر) وكان الاحتمال الإحصائي للمقارنة اقل من 0.05

أما بالنسبة لمستويات نسبة الأليومين للقلويولين في الدم كان هنالك انخفاض ملحوظ في مستوياته عند مرضى السل الرئوي وكانت هذه الزيادة ذات دلالة معنوية إحصائية ، حيث كان المستوي الوسطي عند مرضى السل الرئوي ($0.770 \pm$ وانحراف معياري 0.1421 جرام/ديسيلتر) مقارنة بمجموعة التحكم والتي كان المستوي الوسطي فيها ($1.247 \pm$ وانحراف معياري 0.1430 ملجرام/ديسيلتر) وكان الاحتمال الإحصائي للمقارنة اقل من 0.05

خلصت الدراسة إلى أن مرض السل الرئوي يعتبر من الأسباب التي تؤدي إلى انخفاض ملحوظ في مستويات الأليومين والي زيادة ملحوظة في مستويات القلويولين في مصل الدم و الي انخفاض واضح في نسبة مستويات الأليومين للقلويولين ، أما مستويات البروتين الكلي في مصل الدم فلم يطرأ عليها أي تغيير ذو دلالة معنوية إحصائية عند مرضى السل الرئوي.

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ABBREVIATIONS

AFB	Acid Fast Bacillus
AIDS	Acquired Immuno-Deficiency Syndrome
ARI	Annual Risk of Infection
BCG	Bacille Calmette Gue'rin
DOTS	Directly-Observed Treatment, Short-course
E	Ethambutol
EPTB	Extra-Pulmonary Tuberculosis
FMOH	Federal Ministry Of Health
H	Isoniazid (INH)
HIV	Human Immunodeficiency Virus
IUAT-LD	International Union Against Tuberculosis and Lung Disease
MDR	Multi Drug Resistance
NTP	National Tuberculosis Control Programme
PPD	Purified Protein Derivative
PTB	Pulmonary Tuberculosis
PTB+	Smear Positive Pulmonary Tuberculosis
PTB-	Smear Negative Pulmonary Tuberculosis
R	Rifampicin
SPEP	Serum Protein Electrophoresis
S	Streptomycin
T	Thioacetazone
TB	Tuberculosis
WHO	World Health Organization
Z	Pyrazinamide